

Worksheet to Identify Potential Indicators for Ecological Monitoring

You return to visit your park in 20 years and walk through the park with the current resource manager. The manager tells you about the current condition of the natural resources, the management issues, and threats of the day. What would that person describe to you?

Potential increase in development pressure from Cheyenne. Chronic wasting disease and West Nile virus. Potential changes in use of canal due to changing farm economy.

What are the communities at your park (e.g., native mixed-grass prairie, barren badlands topography, prairie stream, forested riparian area) and approximate percentage of total area?

River oxbows. Many rare species found on the river.

What are the park's most significant natural resources (e.g., the river and its tributaries, caves and cave fauna, rare plant communities, elk herd)?

The rivers. Public views the grass area as a significant resource.

What does your park contribute to regional biological diversity (e.g., what natural resources are preserved and protected at your park that are altered or threatened throughout the rest of the region)?

The rare 8 plants. Bat shelter. Corridor supports both eastern and western species. Open water create good winter habitat for waterfowl and raptors.

What park-specific legislative mandates direct the park to monitor a particular natural resource at your park.

Enabling legislation says protect lands, roads, structures, but nothing directly relating to monitoring.

What federally- or state-listed threatened and endangered species are known to occur in the park?

The occasional bald eagle. Habitat for the Preble's jumping mouse and lady's tresses but none found. 8 state-listed plant species are known to occur, potentially some others.

What is that status of your park's management plans?

1993 GMP. Not likely to redo in the near future. RMP in the mid-90s, mostly geared toward cultural. Fire Plan is going thru NEPA process, comment period ends as end of month. Vegetation Management Plan completed last year and contracted through WY database. IPM plan being initiated through a contract.

What is currently being monitored at or near the park by NPS or other entities (e.g., plants by fire effects program, plants by LTEM, exotic plants by exotic plant teams, birds by Breeding Bird Survey, butterflies, stream by USGS, Christmas bird count, weather data, NRCS photography, visitors by park staff, state roadside counts --- use the checklist below)?

Air: *Power plant 12-15 miles down the road has air quality monitoring.*

Amphibian: *No (other than wildlife observations).*

Birds: *Ditto. Watch for birds for West Nile.*

Fire: *Most likely out of Teton, if done at all. Although could be Black Hills unit. Could burn in spring of 2005. (Look at Fire Plan.)*

Fish: *Ditto with birds.*

Geology: *Nothing they know of – student at U. of Wyoming is doing some work in the area associated with the dam.*

Mammals: *Ditto. Surveillance for disease such as rabies, CWD, West Nile with horses.*

Meteorology: *Temp, precip, wind – Reed monitors for cultural resources. Data submitted to NOAA.*

Pests: *No.*

Pesticides *No program in place, although it has been discussed.*

Reptiles: *Visitor snake complaints.*

Soils: *Look at lead paint in soils around buildings. Not a true monitoring, but project specific.*

Sound: *No.*

Vegetation: *EPMT does their mapping. Park actively looks for salt cedar and Russian olive and does follow up monitoring visually. Would like to monitor re-seeded areas but not sure how. A Professor from Wyoming is looking at cottonwoods throughout the state and has been at the park.*

Visitors *Some data on angler days from rangers. Do not currently monitor confluence trail.*

Visual Landscape: No.

Water Quality: *Grey Rocks (under USGS agreement) collects data on Laramie on rise and fall, temp, DO, nitrates at station close to County Bridge. Takes sample about once a year. Park gets the report. Get a state report on the N. Platte, but not sure where the station is. Park is dependent on wells for drinking water and they monitor thru the state, collect samples every two weeks, and monitor chlorine daily. Gets seepage out of canal but not monitored.*

Wildlife or Plant Disease: No.

What are the stressors on park resources?

Dams on Laramie and North Platte, pesticides from fields, irrigation canal, night lites, sound from railroad track, absence fire, grazing(?), having so many trees, power plant on air quality, national guard helicopters and sound, visitors, exotic plants, carp, Canada geese,

What are some monitoring questions relating to current internal natural resource management actions or external threats (e.g., is the prescribed fire regime maintaining healthy native prairie?)?

*Is the nature trail having adverse affects (they are being promoted more).
Are the horses having adverse effects, including the creation of trails (currently pretty comfortable with 32 head; Sept to May, stocking rate developed by County, park clearly gave them objectives).*

What potential management actions in the future may require monitoring (e.g., potential species reintroductions, land acquisitions, commercial uses)?

Promoting the nature trails use.

What would your partners like you to monitor?

Noxious weed. CWD and West Nile. Things on the state Watch list. FWS would like to monitor Preble's jumping mouse BLM wants NPS to keep tabs on their lands.

What current research is occurring at the park (research differs from monitoring in that it is typically of shorter duration, say 2-3 years)?

IPM may have some book research. New project to look at weeds in the ruins. Wyoming Heritage Database would like some research plots at the park (does not include a testable hypothesis, a way to track plants).

Vital signs are: 1) sensitive enough to provide early warning of change, 2) have low natural variability, 3) can be accurately and precisely measured, 4) have costs and effort of measurement that are not prohibitive, 5) have monitoring results that can be interpreted and explained, 6) are low impact to measure, and 7) have measurable results that can be replicated with various personnel. Off the top of your head, look into your crystal ball and choose several vital signs to monitor over time to track the condition of natural resources within your park (items can range from broad, e.g., the stream, to narrow, e.g., a particular species). What are those vital signs? Rank them in order of importance.

Monitor drinking water (which they are currently doing).

Monitor federally listed species and state watch list.

Monitor plants, with emphasis on fire, exotics, herbicide use, biocontrol.

Monitor for air quality (real concern to lime grout concrete)

Noxious weeds, i.e., those on state list.

Monitor CWD and West Nile.

Water quality on the rivers.

Integrity of cultural landscape, and land use (perhaps using photo points or satellite imagery).

Misc.

Not necessary to monitor vegetation on BLM lands.